

ART. III.—A Collection of Graptolites from the Federal Territory.

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[Read 9th May, 1929; issued separately 9th October, 1929]

The present collection of graptolites from four miles south of Queanbeyan—the first collection to be described from the Federal Territory as far as we are aware—was made by Mr. G. Milliard, of Federal Parliament House, Canberra. It consists of about 30 slabs of bluish-grey very fissile slate, or, more correctly, shale showing considerable iron-staining, the details of the graptolites being in nearly all cases indistinct. If it is possible to obtain specimens from less weathered portions of the fossiliferous band, some fine examples may be found. The fossils in the present collection are in most cases preserved as white films on the shale, and only four genera seem to be represented, viz., *Dicellograptus* (very common), *Dicranograptus*, *Diplograptus*, and *Climacograptus*.

Two species of *Dicellograptus* occur, but the thecal characters on which accurate determination depends are not well shown. The larger species is a heavy form which may be compared with *Dicellograptus gravis* K. and H. (1) from Mt. Easton, and the Yarra Track near Matlock, Victoria. It resembles *D. morrissi*



FIG. 1.—*Dicellograptus* cf. *gurleyi*. Natural size figure, showing re-crossing stipes.

Hopk., but has a squarer axil. A form which may be identical with it, but which seems to be poorly preserved, is figured by T. S. Hall (2) as *D. divaricatus*. Hall's figure, however, shows a rapid divergence from the sicula. The second *Dicellograptus*, in its proximal portion, resembles *D. elegans* Carr. The stipes diverge in the typical caliper fashion, but then approach each other and cross, again diverging and approaching, so that they form an incomplete figure 8.

Occasional specimens show the stipes re-crossing. A similar crossing of the stipes is described by Elles and Wood as characteristic of *Dicellograptus caduceus* Lapw., but in that form the crossing takes place comparatively near the sicula, in our form usually more than 20 mm. distant. The Canberra form may be better compared with *D. gurleyi* Lapw. (4). Where the first crossing is not shown, the specimens are indistinguishable in external appearance from *Dicellograptus elegans*.

Of the Diplograptidae, *Diplograptus calcaratus* var. *vulgata*, *D. ingens*, and *Climacograptus tubuliferus* are specifically determinable, but better material would enable other species to be made out.

The list is therefore—

Dicellograptus cf. *gravis* K. and H. (very common).

D. cf. *gurleyi* Lapw. (very common).

Dicranograptus furcatus cf. var. *minima*, Lapw.

Diplograptus calcaratus var. *vulgata* Lapw. (fairly common).

D. ingens T. S. Hall.

Climacograptus tubuliferus Lapw.

Although the species represented are so limited in number they provide some evidence of the horizon of the beds. The presence of species of *Dicellograptus* of the type shown indicates an Upper Ordovician horizon, but not the lowest zones of the Upper Ordovician. Similarly the absence or comparative rarity of *Dicranograptus* may be regarded, in the present state of our knowledge, as showing that these beds are not near the summit of the Upper Ordovician. At present we know of no Victorian locality with the same association, but it is very probable that some of the Mount Easton beds are on about the same horizon. Several New South Wales graptolite localities—all Upper Ordovician—are mentioned by Hall (5), but the species recorded from most of these are so few that comparison is difficult. The associations at Tallong and Stockyard Creek seem to be different, but more complete collections will be necessary before exact comparisons can be made, especially with the forms occurring at Currowang and Lawson.

The Federal Territory association has its equivalent in Britain with the *Dicranograptus clingani* or Zone 12 of Elles and Wood's (6) tabulation of the British forms.

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